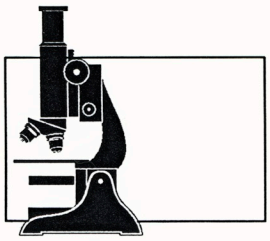
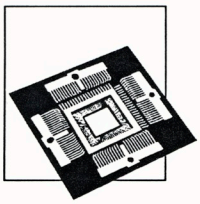
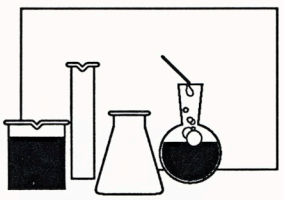
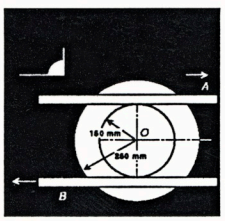
A/UX 2.0 - An Overview

SALES AND RESOURCE GUIDE









CONTENTS

- *Introduction* 1
- *Overview* 2
- *Common Configurations* 4
- *Key Selling Points* 8
- *The Workstation Environment* 13
- *X Window Opportunities* 15
- *Marketplace Opportunities* 17
- *Overcoming Objections* 20
- *Competitive Trends* 25
- *A/UX Tools and Support* 27
- *Glossary* 30

Introduction

The UNIX® marketplace represents a tremendous opportunity for Apple® Computer. With A/UX 2.0 ®you now have the opportunity to sell Macintosh® into those enviroments that require UNIX by offering a full featured UNIX platform with the ease of use and power of the Macintosh.

This guide has been designed to provide an overview of the marketplace and the knowledge to be successful selling Macintosh running A/UX.

Inside you will find:

- *What does a UNIX system look like? Including configuration examples.*
- *Where to find opportunities in business, education, and government.*
- *An explanation of terms and standards.*
- *Objections you may encounter and tips on how to overcome them to win the opportunity.*
- *Additional opportunities with MacX.*

Good Selling!

Overview

WHY BUY UNIX?

Software Portability

If an end user buys a UNIX system with application software, he can run that software on any other UNIX machine supported by the application software supplier. This gives the user great flexibility in selecting a hardware platform.

If the UNIX applications are developed in-house, then porting between machines with identical (or nearly identical) operating systems is simple and fast. On the other hand, converting software between proprietary operating systems requires rewriting of parts of the application, and may require a redesign of the application itself. So, software investment is largely protected if a customer switches to a different UNIX vendor.

Ease of growth path through scalability

UNIX runs on a variety of computers from micros to mainframes. As a company grows and needs more powerful computers, applications can easily be moved to larger systems.

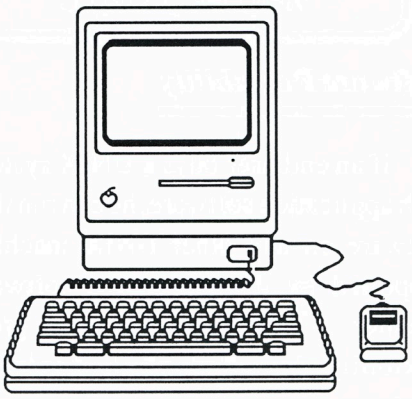
Sharing of information in multi-vendor environments

UNIX computers from different vendors work well together on a network. Transparent access to files on other computers through various network solutions, such as NFS™, make "interoperability" an important factor for UNIX users.

Decreased training costs

With a common operation system environment, skills developed through user training can be transferred to other hardware platforms without the need to learn a new operating system.

We all know, of course, that standard graphical user interfaces, consistent behavior between applications, and integrated product design is really what is required to realize a reduction in training cost.



A premier software development environment

UNIX was originally written for programmers. It provides many powerful tools for developing, managing, and debugging software, which result in a very productive development environment.

Common Configurations

Multi-user terminal-based systems

Because UNIX is a multi-user as well as multi-tasking operating system, it is a fit for applications that require (or allow) several users to be logged into the system simultaneously.

The advantages of a multi-user time shared environment:

- Lower hardware cost than giving a microcomputer to each user
- Centralized system administration
  (only one disk for many users)
- Easy configuration control of software revisions

The disadvantages:

- Poor system performance hurts all users
- Lack of personal computing capabilities
- Only one application can be displayed at a time

Examples of environments that use this configuration are:

Office Workgroups

You may find business offices that have used MS/DOS ® for years and somewhere along the way put SCO XENIX ™ or Interactive Systems UNIX on one system, then added terminals for the users. Or, your customer may have purchased a minicomputer running UNIX. The motivations for setting up a configuration like this include:

- Lower cost per desktop when compared to a fully configured system on each user's desk.
- The need for a tightly integrated environment.
- The need for more CPU power to provide for large analysis or database applications.
- Selection of a computer based on application availability.

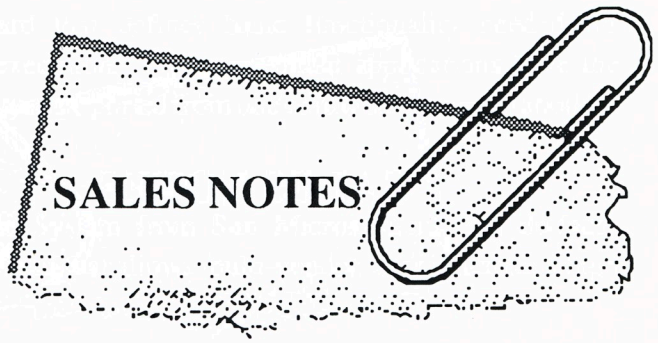
Certainly the capabilities of terminals are far less than that of a microcomputer, but many office needs are essentially met using UNIX-based applications. Menu driven user-interfaces have begun to simplify the process, but sharing data between applications usually means invoking translators.

⋙ *Point-of-sale operations*

Examples: retail and wholesale stores, motels and hotels, restaurants, car rental agencies, libraries, video stores, etc. The computer in the back room may very well be a minicomputer or high-end micro running some version of UNIX or XENIX. Transaction-oriented vertical software applications are handling user requests that control inventory, accounts receivable, billing, sales statistics, etc.

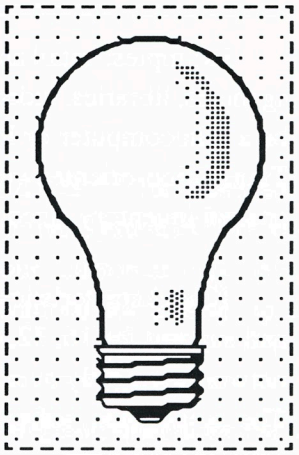
Key characteristics include powerful business systems, transaction orientation and support for 16, 32, or more users. These computers may exist on a wide-area network (typically over X.25 networks) connected to a central company mainframe. The application software is frequently developed and maintained by in-house software engineers.

Many of the over 400,000 installed SCO XENIX/UNIX systems fit this configuration.



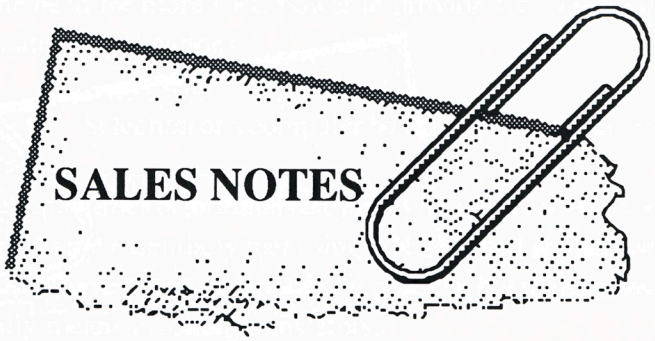
Turn-key single application multi-user systems like this are probably not a good fit for A/UX 2.0. A key message in Apple's A/UX strategy is that A/UX 2.0 is a multi-environment desktop computer. However, look into the possibility that the person using the terminal may become more productive and better utilized if he had a Macintosh that windowed into the UNIX computer for POS applications, and maximized his efficiency by using Macintosh.

Software Development Organizations



In many cases programmers have a terminal on their desk or in a terminal room. As in the case of other multi-user configurations, the user interface is typically command-driven on a non-bitmapped terminal. The people using these terminals may be quite skillful with UNIX facilities.

The computer, in addition to its primary use as a software development machine, also provides a few applications such as electronic mail, word processing, business graphics, and statistical analysis.



These multi-user software development systems often are configured with one system console, a color bit-mapped display, running X Window™ or some other graphical user interface. This is a perfect target for networked Macintosh systems running A/UX. This also opens up a whole new world of Macintosh productivity for the programmer/engineer right at his desk, with personal desktop tools and applications that are unavailable on the UNIX mainframe.

Key Selling Points

Distinguishing Features of Macintosh A/UX:

A/UX is truly UNIX: System V.2.2, BSD4.3 extensions, Posix compliant, NFS 3.2, Berkeley Network Services, X11R3. No compromises.

What does that mean?

System V.2.2
In full, AT&T UNIX System V, Release 2, Version 2. This is source code software licensed to Apple from AT&T.

BSD 4.3
Berkeley Software Distribution version 4.3. These extensions are commands and programming features that users expect on any UNIX system.

Posix
IEEE standard that defines basic functionality needed for application execution. Posix-compliant applications have the greatest ability to be ported from one hardware system to another.

NFS
Network File System from Sun Microsystems. A de-facto industry standard that allows multi-vendor access across a high speed LAN.

X11R3
X Window System, Version 11, Release 4. The first ten versions were done at MIT, Version 11 was the first version to become an industry standard networked windowing system. (This must be ordered separately.)

Unless vendors who offer UNIX meet these minimum requirements, customers will not consider the computer as a UNIX solution.

The Desktop user interface to UNIX

The added value of the Macintosh user interface is a primary distinctive feature of A/UX 2.0. The point- and-click approach to manipulating files, running applications, cutting and pasting, are all powerful new features for UNIX users. The productivity improvements for new and even experienced users can be tremendous. There are a growing number of graphical user interfaces for UNIX, but none provide the complete application and operating system integration of the Macintosh desktop.

"The most important feature the Mac II brings to would-be UNIX users is the easy-to-master, graphic user interface that is the joy of over a million Mac users. Those who have condemned UNIX for its user belligerence now have a solution to their distress. They can run Macintosh applications, never knowing that a cryptic but powerful UNIX lurks just beneath their every mouse move."

March 1988 UNIX World

"Apple is positioned to meet the needs of a new class of UNIX users - those who aren't ready to deal with UNIX in the raw but are more than ready to utilize its power. The chief offering Apple brings to these users is a consistent user interface renowned for its intuitive ease. If that were the only gift Apple brought to the UNIX community, the community would be well served."

March 1988 UNIX World

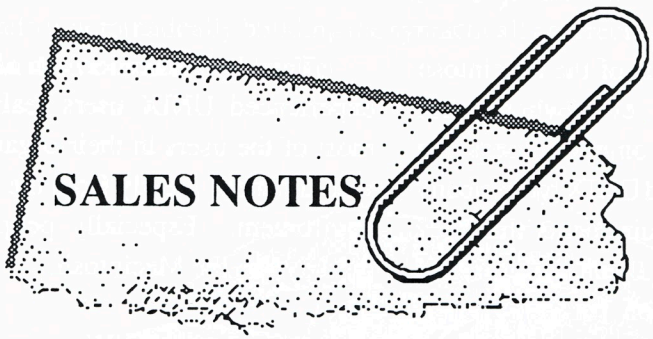
"With A/UX 2.0, Apple has finally provided us with the UNIX we've been waiting for. A/UX 2.0 looks like a Macintosh, acts like a Macintosh, runs Macintosh applications, and is a complete UNIX to boot. When you start it up, A/UX 2.0 looks like a Macintosh running MultiFinder. Unless you look carefully, you can easily mistake an A/UX 2.0 system for a 'normal' Macintosh."

May 1990 MacUser

Hundreds of applications

ONE COMPUTER ON YOUR DESK:
UNIX and A GENERAL PURPOSE PRODUCTIVITY TOOL .

The thousands of existing Macintosh applications will run on A/UX 2.0. It is transparent to the user as to whether they are running the Macintosh operating system or A/UX.

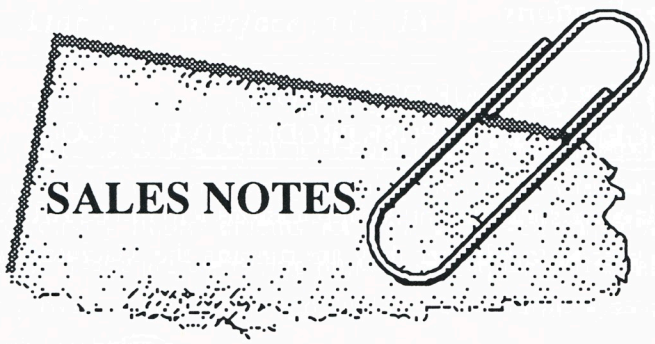


This is a significant distinguishing feature of A/UX for at least three important reasons:

1. There is still a strong perception in many people's minds that UNIX lacks applications, especially in the commercial marketplace. With A/UX 2.0 on a Macintosh, off-the-shelf 32-bit clean applications will run under MultiFinder .

2. Existing Macintosh users who intend to begin using UNIX computers can run their favorite applications on A/UX 2.0 from MultiFinder™.

3. Typically, off-the-shelf Macintosh applications tend to cost less than applications written for UNIX with similar functionality.



Sell the benefits of the Macintosh operating system everywhere, but especially where computer users are being pushed toward UNIX by company or government requirements that they buy UNIX. A/UX 2.0 can be positioned as the perfect solution for those people who don't want to learn the cryptic and difficult UNIX command line shells.

You may have seen the demonstration in which a series of file operations are carried out with the cryptic UNIX command line interface, and then the same operations are done with the intuitive desktop interface. This is a powerful demonstration to show novice UNIX users who have had a taste of UNIX and are still early in the learning curve, soon-to-be UNIX users who have heard of the unfriendly and difficult user interface.

This demonstration can also help experienced UNIX users realize that most of the users in their organization would benefit greatly from the desktop enviroment. Especially people who already use the Macintosh.

Experienced UNIX users will want to see the ability to run a Command Shell from MultiFinder that provides the traditional command line interface to UNIX through a C, Bourne, or Korn shell.

≫ *Commando*

The A/UX Commando facility is a UNIX command builder. Commando allows users access to the several hundred powerful UNIX commands without having to learn all of the esoteric UNIX command line options, usually non-intuitive single letter flags, that control the command. With Commando, a user builds UNIX command lines by selecting check boxes and radio buttons for options that are spelled out on the screen. While the user is choosing how he wants the command to behave, Commando is automatically building the syntactically correct UNIX command line, which can then executed by the user.

The Workstation Environment

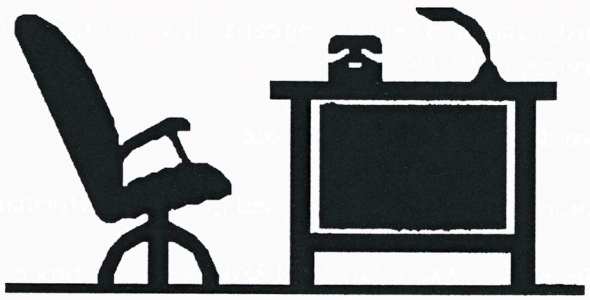
A reasonable definition of a low-end UNIX workstation is a computer that:

- costs between $4000 and $20,000
- performs at 4 to 25 MIPS
- includes industry standard networking capability such as TCP/IP, Berkeley Network Services and NFS
- provides a windows-based user interface
- delivers medium to high level bitmapped graphics performance
- is built on Motorola® 68030/40, Intel 386/486, RISC processors like Sun Microsystems SPARCsystem™ or Motorola's 88000

For years UNIX workstations have been used by software developers, engineers, technical writers, production artists, and other technical users. Most workstation users have invested the time and effort required to become fluent in using the UNIX command interpreter shells, and many have acquired some programming skills to better accomplish their tasks. Over the last few years an increasing number of commercial (in contrast to "technical") applications have been written for or ported to UNIX workstations. These include project management, accounting, office automation, executive information systems, report writers and application generators.

Usually UNIX workstations are found in bunches, all networked together with ARPA/Berkeley services and possibly NFS. A range of low to high performance workstations may be found in these networks and the high-end workstations may provide compute services to other workstations on the network. There may also be file and peripheral servers. A variety of different applications will be running on the workstations: mechanical or electrical design and engineering, computer-aided software engineering, desktop publishing, statistical analysis, and other traditional workstation applications. Most workstation vendors offer some sort of DOS coprocessing or emulation, so one or more of the nodes on the network can run other applications. In a larger UNIX workstation network there will be some microcomputers on the network targeted for office automation or possibly design applications.

The physical location of the workstations may be in a lab or computer room, instead of on the desk. This arrangement serves what is sometimes called "the migratory worker" concept, in that a user will not use the same workstation every time. This is achieved through network software that provides a "home" for the user no matter where he sits. All his files will be accessible just as if he had his own workstation.



X Window Opportunities

The XWindow System (or simply 'X') is an industry-standard software system that allows development of portable graphical user interfaces. X has a device-independent architecture allowing programs to display windows containing text and graphics on any hardware that supports the X protocol without modifying, recompiling, or relinking the application. X applications can function in a heterogeneous environment consisting of mainframes, workstations, and microcomputers.

Advantages of X Window environments:

- A consistent user interface for many applications
- Multiple graphical applications can run simultaneously
- Industry standard

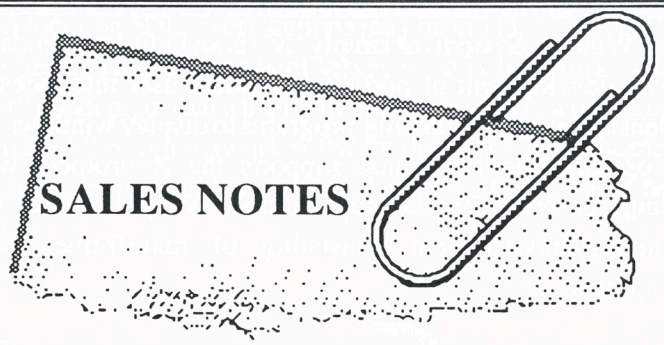
Disadvantages:

- Slow network and client-side performance

We offer two solutions to an X Window opportunity. X Window, supplying client and server capabilitites, running under A/UX 2.0, and MacX running under the Macintosh operating system. MacX is an important differential for the Macintosh. MacX allows Macintosh and X Window applications to be displayed simultaneously, under the control of MultiFinder.

Computer users can run applications physically located on remote computers, but display the output on their own computer (say a Macintosh running MacX). The client application is device independent from the server.

All workstation vendors provide both client and server capabilities. Macintosh will provide a new strategic advantage. If you find a networked workstation environment, even if A/UX is not a feasible solution, MacX will help you sell Macintosh!



Key points to understand about MacX

MacX provides the capability for a Macintosh to act as a display server for applications that execute on other systems on the network. This provides a new level of integration of Macintosh into a UNIX network. In addition to using the Chooser to "graft" file systems iconically, MacX now allows the Macintosh to run remote applications as local applications, and to copy and paste from remote applications to local applications running under MultiFinder.

X terminals are becoming more prevalent. These are bit-mapped display terminals that are usually connected over an Ethernet LAN to a host computer. They provide display and input services, but these terminals only provide X services, not additional microcomputer application capabilities. X terminals are inexpensive, so graphical applications required by a large number of users can now be implemented without the cost of a workstation for each user.

X is also very important in NON-NETWORKED environments because it is the basis for UNIX Graphical User Interfaces (GUI). The following GUI's are all based on the X protocol:

- **Motif™** from OSF
- **Open Look™** from Sun and AT&T
- **Open Desktop™** from SCO
- **DECwindows™** from Digital
- **X.desktop™** from UniPress Software
- **Looking Glass ®** from Visix

Marketplace Opportunities

Software development

Software developers for UNIX systems can be classified into several categories. System programmers, value-added resellers, third-party software suppliers, and internal company programming departments are all potential customers. Each of these categories can be further divided by the type of software that they develop.

How do you approach this vast market? What does A/UX 2.0 have to offer people who design and write software?

Look for software developers whose customers are demanding open systems.

Ask questions:

"Have you been seeing a demand for UNIX-based applications?"

"Are your customers asking for UNIX-based software?"

"What are your plans for developing UNIX applications?"

???

Try to convince developers to write their A/UX code using the Toolbox to create a Macintosh-style user interface for the application. These kinds of programs are sometimes called hybrid applications, they provide the best user interface for A/UX applications on a Macintosh.

If the developer wants the application to be available on other UNIX systems, they may be reluctant to support two graphical user interfaces - the Macintosh Toolbox and an X Window interface. One solution is to write the interface under X and then run it on the Macintosh using MacX under MultiFinder, or under X Window on A/UX without MultiFinder.

⋙ *Organizations implementing standards-based computing environments.*

A/UX 2.0, meets UNIX requirements on corporation computer standards lists. The features of the Macintosh give you added selling power.

⋙ *Government agencies, institutions, contractors.*

The U.S. Government requires the UNIX operating system on most large projects. These include programs for internal agencies, as well as contract work.

An increasing number of cities mandate UNIX as a prerequisite for city government contracts as well.

⋙ *Engineering, scientific and technical users.*

These are the primary market segments where UNIX workstations are used and where the highest percentage of purchases occur. Opportunities for A/UX 2.0 abound in scientific labs, company engineering departments, and manufacturing facilities.

Users have been applying UNIX-based solutions to specific engineering and manufacturing needs, and they have been purchasing separate microcomputers for general productivity engineering. You can simplify that approach with the combination of:

1) The power of the Macintosh.

2) Porting specific UNIX applications to A/UX 2.0.

3) The intuitive ease-of-use of the Macintosh desktop.

4) Hundreds of Macintosh productivity applications that run under A/UX 2.0.

⋙ *Places where they already have Macintosh and want or need UNIX*

In the technical marketplace demand for UNIX started years ago and is increasing every day. Many Macintosh users in this segment are also UNIX users, so they quickly understand the reasons for upgrading their existing systems to run A/UX. They are also great internal champions for Macintosh because they understand the power of the system.

Look to your customer base for Macintosh systems attached to UNIX servers. Applications on the server can now be ported to A/UX 2.0. These existing Macintoshes are excellent candidates for A/UX upgrades, and new Macintosh computers will be purchased in the process. Nothing is lost for the customer in this plan, and much is gained.

Overcoming Objections

Objections that you may encounter about A/UX and Apple's A/UX strategy, what they mean and how to overcome them.

OBJECTION

Macintosh and A/UX 2.0 will probably have a higher initial price tag than a disk-less node or terminal.

RESPONSE

Consider the long-term cost of not buying Macintosh. Studies show engineers spend 70% of their time doing non-engineering tasks. They are most productive with a computer on their desktop. Does the customer intend to buy terminals and also buy additional systems for productivity?

OBJECTION

The applications intended to be downloaded from the server may not be available on the Macintosh.

RESPONSE

Investigate getting the applications ported to A/UX, or consider the strategy of a more powerful server (more RAM, more disk space) and run the applications off the server using MacX. This implies that the applications are written in X, but if they are not, and it's clear that the applications will not be ported to A/UX, then ask the customer why they are buying proprietary applications that only run on one vendor's hardware.

OBJECTION

Not X/Open compliant.

X/Open, founded in 1984, is an independent, non-profit consortium of international computer system vendors whose intent is to adopt and refine a set of standards for operating systems and subsystems to allow easy portability of application software. X/Open standards are based upon existing standards. The intent is to ensure portability and connectivity of applications to allow users to move between systems without retraining.

RESPONSE

Today, it seems that most companies who tout X/Open branding are the computer and operating system sellers not the application developers.

Apple is constantly monitoring the standards required by our customers. 70% of all U.S. Federal government computer bids that require UNIX specify Posix compliance, not X/Open, and a typical commercial RFP may require minimum compliance with AT&T System V.2 or V.3., not X/Open XPG.

OBJECTIONS

A/UX is not based on AT&T System V.3. (A/UX 2.0 is based on System V.2.)

RESPONSE

Ask the customer what specific features of V.3 they need. Customers may think they need the latest version of a standard, when in fact all the features they require are in V.2. System V is the original UNIX and it is still the most popular version on the market.

OBJECTIONS

Lack of UNIX applications.

RESPONSE

This may refer to UNIX applications that haven't yet been ported to A/UX 2.0 by third-parties.

With A/UX 2.0, MultiFinder runs as a log-in environment for users, with nearly complete transparency as to whether A/UX 2.0 or the Macintosh operating system is the underlying operating system.

There is a large and growing list of third-party products that work with A/UX 2.0, in a variety of application categories. Third-party software suppliers are much more excited about potential for their applications on A/UX 2.0.

There are hundreds of off-the-shelf Macintosh applications that are immediately available to run on A/UX.

OBJECTION

Use of proprietary MacToolbox applications is contrary to standards-based computing.

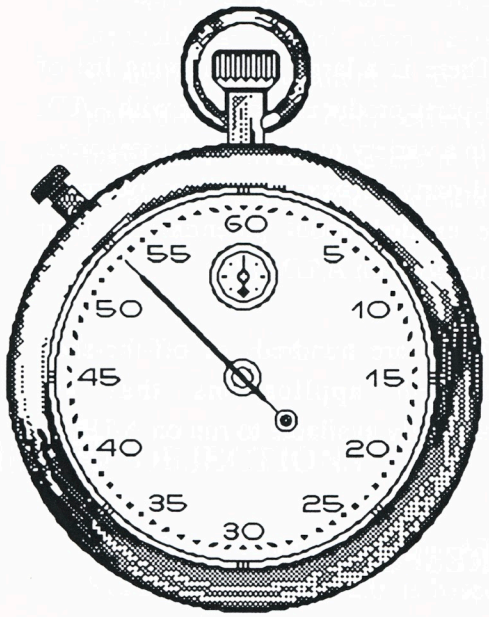
RESPONSE

Position the hundreds of Macintosh operating system applications that run on A/UX as personal computer productivity applications available to the customer in addition to UNIX. The microcomputer and UNIX workstation now reside in a single platform on the desktop.

One computer, one operating system, but many more immediately available applications than any other UNIX system can provide.

OBJECTION

Raw "horsepower" of most workstations is greater than the Macintosh.



RESPONSE

Competition in the workstation marketplace is based on the performance of a machine, as measured by MIPS or benchmarks. The speed of the Macintosh IIfx may change this perception. However, if the Macintosh advantages are not going to be strongly considered over and above the hardware power of the machine, then it is time to try to change the game.

Convince the customer that people do not buy Macintosh computers for sheer speed of execution, but also for enhanced user productivity, flexibility and growth without disruption.

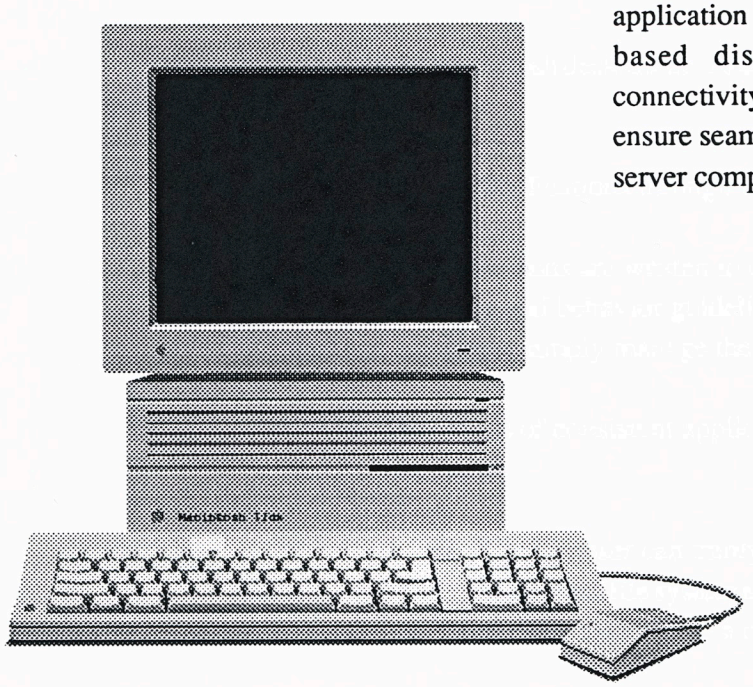
OBJECTION

Apple does not have a disk-less A/UX computer.

RESPONSE

Most of the time when a decision is made to implement a disk-less configuration two factors dominate: one, the users will be using a fixed set of applications (often only one) so each disk-less computer is viewed as an "application engine"; and two, the lowest cost per computer prevails over other considerations.

Make sure that the customer clearly understands the difference between a server-dependent disk-less computer and a Macintosh. A Macintosh provides far more personal application capabilities than a UNIX based disk-less node, and the connectivity of the Macintosh can ensure seamless network access to the server computer.



Competitive Trends

Recent non-Apple progress in graphical desktop managers for UNIX

Looking Glass and X.desktop are both designed to provide easy-to-use graphical interfaces to UNIX. In fact Looking Glass literature claims it is "Macintosh-like." They are both mouse and icon driven and they both provide the following features:

- Compliant with the OSF/Motif look-and-feel standard
- Typed icon representations of files and directories
- Point, click, and drag operations for file and application management
- Icon file management including Create, Copy, Move, etc.
- Automatic application execution by double-clicking
- Access to standard UNIX shells within windows
- Customization capabilities including icon creation and editing
- X Window compatible

The advantages of the Macintosh desktop on A/UX 2.0 over these packages are still quite substantial:

- Cut and paste between applications through the clipboard
- Macintosh applications are written to conform to Macintosh desktop interface and behavior guidelines, whereas the UNIX desktop managers simply manage the applications and files
- Thousands of consistent applications are available for Macintosh
- The Chooser can transparently extend the Macintosh file system and desktop management to other systems on a network

Overall, UNIX desktop managers do make using UNIX much easier and more productive than old-style command line interfaces. But, the Macintosh still has a competitive edge over a UNIX user interface. The Macintosh operating systems and software applications are integrated with the Toolbox to cooperate with each other, and no standards are even close to defining similar functionality for UNIX. The completeness of the Macintosh user interface keeps it way ahead of UNIX graphical desktop managers.

A/UX Tools and Support

A/UX Bulletin Board Icon—APPLELINK

- √ **A/UX News**— success stories and information.
- √ **Product Information**—includes the latest datasheets Glossary of terms.
- √ **Product Information (APPLE ONLY)**—A/UX Bibliography Service, details on ordering, and the Technical Hotline Service.
- √ **Marketing Information**—A/UX Buying Process Chart, A/UX 2.0 Marketing Overview document, A/UX 2.0 Q & A, Competitive Information.
- √ **Sales Tools**—A/UX 2.0 presentations, color and black & white.
- √ **Training**—Curriculum, courses, and the Concepts and Capabilities self-paced HyperCard ® stack.
- √ **Third Party Product Information**
- √ **Developer Information**

Video

√ March 19, 1990 New Product Rollout kit

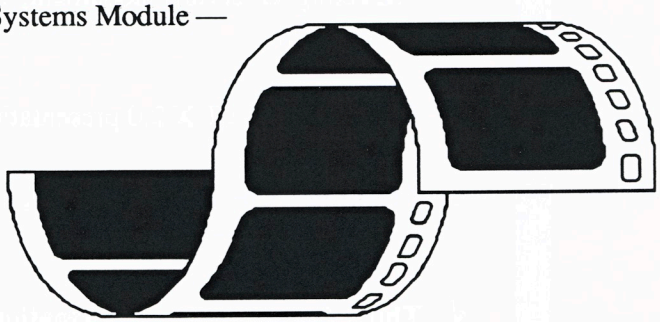
1) **History of Unix**—History of UNIX & A/UX, Apple's version of UNIX. (2minutes25seconds)

2) **A/UX MacroMind Director**—Demonstrates A/UX 2.0 and X Window, must be narrated (8:46)

3) **Interview with Ron Johnston, Project Leader, A/UX** explains the issues and concerns of UNIX users and how A/UX 2.0 can provide solutions. (3:03)

√ Information Management Conference Seminar kit—Macintosh and Open Systems Module — **A/UX demo** (4:45)

√ Training videos



Seminars and Presentations

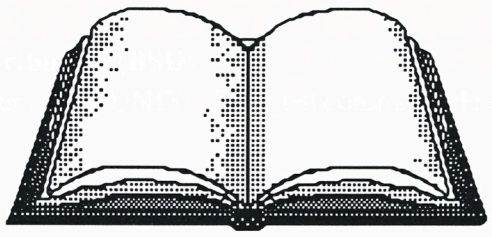
√ March 19, 1990 New Product Rollout kit contains a **CD** with a **Seminar on A/UX 2.0**, titled "Everything you expect from a Macintosh, Everything you need from Unix" (Persuasion).

√ Refer to presentations outlined under **AppleLink®**

√ **A/UX Concepts and Capabilities**—a comprehensive study guide (HyperCard stack).

Publications and Collateral

√	M6198/B	1989 Apple Multivendor Network Solutions Guide, success stories/case histories (pgs.164-166)
√	M0659LL/A	X Window System for A/UX Product Sheet
√	M0660LL/A	A/UX Operating System V2.0 Product Sheet



Glossary

/

1) main or topmost directory; root; 2) separator between parts of pathname.

/unix

Executable file that the system executes at booting; this file assigns system parameters and sets the system in operation; file containing the kernel.

/usr/group

An organization of UNIX users, now called UniForum.

Berkeley Networking Services

Utility to provide high-speed communication.

Berkeley Software Distribution (BSD)

The U.C. Berkeley version of UNIX. The most common releases are Versions 4.2 and 4.3.

Bourne shell

Command interpreter that Steven Bourne developed at AT&T.

C

A high-level language with few hardware dependencies; the language in which over 80% of the UNIX operating system is written.

C shell

Command interpreter developed by UC Berkeley programmers.

Commando

Dialog box based command builder interface for UNIX commands, includes context-sensitive help.

DECwindows

Digital Equipment Corporation's X-based windowing system incorporated in OSF's standard windowing system.

ed

The standard UNIX line editor.

FIPS

Federal Information Processing Standard; federal government's standard for computer purchases; FIPS 151-1 refines IEEE's POSIX standard (1003.1-1988).

GOSIP

The government version of OSI standard.

kernel

That portion of the operating system that communicates directly with the hardware to allocate software and hardware resources.

korn shell

A revised command interface that contains features of its two predecessors, the Bourne and C shells from AT&T and U.C. Berkeley.

MACH

UNIX work-alike written at Carnegie-Mellon; additionally used, in part, by OSF as part of their recommended operating system.

MacX

Apple's X display server, provides users with network- and vendor- transparent access to host computers.

MOTIF

The windowing system specified by the Open Software Foundation (OSF); a hybrid of Presentation Manager, Hewlett-Packard's NewWave, and DECwindows. Motif is built on the X Window System from MIT.

netnews

Global UNIX user bulletin board with over 500 interest groups and over 8000 recipient systems; electronic forum for stating opinions and sharing ideas, requesting and receiving or providing information, and posting public domain software.

New Wave

HP windowing system incorporated in OSF's standard windowing system.

Network Information Service

A distributed network database service that makes server-based files available to workstations.

NIS

Network Information Service, distributed network database service, which makes available to workstations copies of certain files maintained on the server, service used with NFS; formerly Yellow Pages.

NFS

Network File System; the de facto standard for transparent file sharing; facility enabling a user on one vendor's computer to access files on another vendor's computer.

Open Software Foundation (OSF)

A consortium of companies dedicated to defining UNIX standards. Includes Apollo, Digital Equipment Coporation, Hewlett-Packard, and IBM.

OSI

Networking standard; Open Systems Interconnect.

POSIX

IEEE proposed standard interface.

SCO

Santa Cruz Operations.

Serial Line/Internet Protocol (SL/IP)

Provides TCP/IP protocols over serial lines - a slower but less costly alternative to Ethernet.

shell

A specialized UNIX utility that serves as a character-oriented command-line user interface.

SVID

System V Interface Definition; AT&T standard that rigorously defines core elements of the System V operating system.

SVVS

System V Verification Suite; AT&T software that runs on a UNIX system to test whether that system meets the SVID.

System V Definition

SVID; AT&T standard that rigorously defines core Interface elements of the System V operating system.

System V Suite

SVVS; AT&T software that runs on a UNIX system Verification to test whether that system meets the SVID.

TCP/IP

Transmission Control Protocol/Internet Protocol.

Transport Control Protocol/Internet Protocol (TCP/IP)

A common communications protocol used in UNIX-based computers.

Trusted Systems

Federal government's graded approach to security standards.

X Window

A device-independent multitasking system for System windowing and graphics; system that operates across heterogeneous networks; originally designed by MIT.

X Window Consortium

A group that defines X Window standards for future System versions; includes Apple.

X/Open Standards Committee

A group founded in Europe that sets standards for UNIX and related tools, focusing primarily on user needs. UNIX International and OSF are members.

NOTES

1990 Apple Computer, Inc., Apple, the Apple logo, AppleLink, AppleTalk, A/UX, HyperCard, and Macintosh are registered trademarks of Apple Computer, Inc. MultiFinder is a trademark of Apple Computer, Inc. IBM is a registered trademark, XENIX is a trademark of International Business Machines, Inc. Motorola is a registered trademark of Motorola Corporation. Microsoft and MS/DOS are registered trademarks of Microsoft Corporation. OPEN LOOK is a trademark and UNIX is a registered trademark of AT&T. SPARCsystem and NFS are trademarks of Sun Microsystems, Inc. DECwindows is a trademark of Digital Equipment Corporation. Looking Glass is a registered trademark of Visix Software, Inc. Motif is a trademark of OSF.

Business Sales Development

MAY 1990
Apple Computer, Inc.
1500 Quail Street, Suite 550
Newport Beach, CA 92660
(714) 752-0303